

SEQUENCE LISTING

<110> KIKUCHI, YASUFUMI
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KINOSHITA, YASUKO
IIJIMA, SHIGEYUKI
FUKUSHIMA, NAOISHI
TSUCHIYA, MASAYUKI

<120> HUMANIZED ANTI-CD47 ANTIBODY

<130> 060641-0113

<140> 10/578,840
<141> 2006-05-10

<150> PCT/JP04/016744
<151> 2004-11-11

<150> JP 2003-381406
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<170> PatentIn Ver. 3.3

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gtgtccactc ccaggtgcag ctgggtcagt ctggggctga ggtgaagaag cctggggcct 120
cagtgaagg ttc 133

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<213> Artificial Sequence

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oligonucleotide

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tcaaggacag agtcacgatg accccggaca cgtccacgag cacagtctac atggagttga 120
gcagtctcag atc 133

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gaataacatg gttggcgaag gtgtatccag atgccttaca ggaaaccttc actgaggccc 120
caggcttctt cac 133

<210> 4
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<223> Description of Artificial Sequence: Synthetic
oligonucleotide

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cgcggatcca ctcacctgag gagacggtaa ccagggttcc ttggccccc 60
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actccatgta gac 133

<210> 5
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<213> Artificial Sequence

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oligonucleotide

<400> 5
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<210> 6
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 6
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<210> 7
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<220>
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<222> (1)..(408)

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Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
      1           5           10          15

gtc cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag      96
Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
      20          25          30

cct ggg gcc tca gtg aag gtt tcc tgt aag gca tct gga tac acc ttc      144
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
      35          40          45

gcc aac cat gtt att cac tgg gtg cga cag gcc cct gga caa ggg ctt      192
Ala Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
      50          55          60

gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat      240
Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
      65          70          75          80

gag aag ttc aag gac aga gtc acg atg acc cgg gac acg tcc acg agc      288
Glu Lys Phe Lys Asp Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser
      85          90          95

aca gtc tac atg gag ttg agc agt ctc aga tct gag gac acg gcc gtc      336
Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
      100         105         110

tat tat tgt aga ggg ggt tac tat act tac gac gac tgg ggc caa      384
Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
      115         120         125

gga acc ctg gtc acc gtc tcc tca ggtgagtgga tccgcg      424
Gly Thr Leu Val Thr Val Ser Ser
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<210> 8
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<213> Artificial Sequence

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<220>
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<210> 9
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 <212> DNA
 <213> Artificial Sequence

<220>
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<210> 10
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<220>
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<220>
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 <222> (1)..(408)

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 1 5 10 15

gtc cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
 Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

cct ggg gcc tca gtg aag gtt tcc tgt aag gca tct gga tac acc ttc 144
 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

gcc aac cat gtt att cac tgg gtg cga cag gcc cct gga caa ggg ctt 192
 Ala Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat 240
 Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

gag aag ttc aag gac aga gtc acg atg acc tca gac acg tcc acg agc 288
 Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Thr Ser
 85 90 95

aca gtc tac atg gag ttg agc agt ctc aga tct gag gac acg gcc gtc 336
 Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
 100 105 110

tat tat tgt gct aga ggg ggt tac tat act tac gac gac tgg ggc caa 384
 Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

gga acc ctg gtc acc gtc tcc tca ggtgagtgg a tccgcg 424
 Gly Thr Leu Val Thr Val Ser Ser
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<210> 11
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 11
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<210> 12
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 12
gaagggtgtat ccagatgc 18

<210> 13
<211> 424
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
plasmid

<220>
<221> CDS
<222> (1)..(408)

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1 5 10 15

gtc cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag	96
Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys	
20 25 30	
cct ggg gcc tca gtg aag gtt tcc tgt aag gca tct gga tac acc ttc	144
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe	
35 40 45	
acc aac cat gtt att cac tgg gtg cga cag gcc cct gga caa ggg ctt	192
Thr Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu	
50 55 60	
gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat	240
Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn	
65 70 75 80	
gag aag ttc aag gac aga gtc acg atg acc tca gac acg tcc acg agc	288
Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Thr Ser	
85 90 95	
aca gtc tac atg gag ttg agc agt ctc aga tct gag gac acg gcc gtc	336
Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val	
100 105 110	
tat tat tgt gct aga ggg ggt tac tat act tac gac gac tgg ggc caa	384
Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Asp Asp Trp Gly Gln	
115 120 125	
gga acc ctg gtc acc gtc tcc tca ggtgagtgga tccgcg	424
Gly Thr Leu Val Thr Val Ser Ser	
130 135	

<210> 14
 <211> 39
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
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<400> 14
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<210> 15
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
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<400> 15
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<210> 16
 <211> 424
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
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<220>
 <221> CDS
 <222> (1)...(408)

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 1 5 10 15

gtc cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
 Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

cct ggg gcc tca gtg aag gtt tcc tgt aag gca tct gga tac acc ttc 144
 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

gcc aac cat gtt att cac tgg gtg cga cag gcc cct gga caa ggg ctt 192
 Ala Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat 240
 Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

gag aag ttc aag gac aaa gtc acg atg acc tca gac acg tcc acg agc 288
 Glu Lys Phe Lys Asp Lys Val Thr Met Thr Ser Asp Thr Ser Thr Ser
 85 90 95

aca gtc tac atg gag ttg agc agt ctc aga tct gag gac acg gcc gtc 336
 Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
 100 105 110

tat tat tgt gct aga ggg ggt tac tat act tac gac gac tgg ggc caa 384
 Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Asp Asp Trp Gly Gln
 115 120 125

gga acc ctg gtc acc gtc tcc tca ggtgagtgga tccgcg 424
 Gly Thr Leu Val Thr Val Ser Ser
 130 135

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<210> 17
<211> 39
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

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<210> 18
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 18
cgtgactctg tccttgaa 18

<210> 19
<211> 424
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      plasmid

<220>
<221> CDS
<222> (1)..(408)

<400> 19
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      1           5           10          15

gtc cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
      20          25          30

cct ggg gcc tca gtg aag gtt tcc tgt aag gca tct gga tac acc ttc 144
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
      35          40          45

gcc aac cat gtt att cac tgg gtg cga cag gcc cct gga caa ggg ctt 192
Ala Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
      50          55          60

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gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat 240
 Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

gag aag ttc aag gac aga gtc acg ctg acc tca gac acg tcc acg agc 288
 Glu Lys Phe Lys Asp Arg Val Thr Leu Thr Ser Asp Thr Ser Thr Ser
 85 90 95

aca gtc tac atg gag ttg agc agt ctc aga tct gag gac acg gcc gtc 336
 Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
 100 105 110

tat tat tgt gct aga ggg ggt tac tat act tac gac gac tgg ggc caa 384
 Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

gga acc ctg gtc acc gtc tcc tca ggtgagtgga tccgcg 424
 Gly Thr Leu Val Thr Val Ser Ser
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<210> 20

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 20

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39

<210> 21

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 21

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<210> 22

<211> 424

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
plasmid

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<221> CDS

<222> (1)..(408)

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1															15	

gtc	cac	tcc	cag	gtg	cag	ctg	gtg	cag	tct	ggg	gct	gag	gtg	aag	aag	96
Val	His	Ser	Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Ala	Glu	Val	Lys	Lys	
															30	
20																

cct	ggg	gcc	tca	gtg	aag	gtt	tcc	tgt	aag	gca	tct	gga	tac	acc	ttc	144
Pro	Gly	Ala	Ser	Val	Lys	Val	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Thr	Phe	
															45	
35																

acc	aac	cat	gtt	att	cac	tgg	gtg	cga	cag	gcc	cct	gga	caa	ggg	ctt	192
Thr	Asn	His	Val	Ile	His	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	
															60	
50																

gag	tgg	atg	gga	tat	att	tat	cct	tac	aat	gat	ggt	act	aag	tat	aat	240
Glu	Trp	Met	Gly	Tyr	Ile	Tyr	Pro	Tyr	Asn	Asp	Gly	Thr	Lys	Tyr	Asn	
															80	
65																

gag	aag	ttc	aag	gac	aga	gtc	acg	atg	acc	tca	gac	acg	tcc	acg	agc	288
Glu	Lys	Phe	Lys	Asp	Arg	Val	Thr	Met	Thr	Ser	Asp	Thr	Ser	Thr	Ser	
															95	
85																

aca	gtc	tac	atg	gag	ttg	agc	agt	ctc	aga	tct	gac	gac	acg	gcc	gtc	336
Thr	Val	Tyr	Met	Glu	Leu	Ser	Ser	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	
															110	
100																

tat	tat	tgt	gct	aga	ggg	ggt	tac	tat	act	tac	gac	gac	tgg	ggc	caa	384
Tyr	Tyr	Cys	Ala	Arg	Gly	Gly	Tyr	Tyr	Tyr	Tyr	Asp	Asp	Trp	Gly	Gln	
															125	
115																

gga	acc	ctg	gtc	acc	gtc	tcc	tca	ggtgagtgaa	tccgcg	424
Gly	Thr	Leu	Val	Thr	Val	Ser	Ser			
130										
135										

<210> 23

<211> 35

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 23

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<210> 24
<211> 39
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 24
aaccatgtta ttcactggct gcgacaggcc cctggacaa 39

<210> 25
<211> 43
<212> DNA
<213> Artificial Sequence

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oligonucleotide

<400> 25
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<210> 26
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 26
cactgaggcc ccaggcttc 19

<210> 27
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 27
ccagtgaata acatggtt 18

<210> 28
<211> 49
<212> DNA
<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 28
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<210> 29
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
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<400> 29
 ggacgtgtct gaggtcatcg 20

<210> 30
 <211> 424
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
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<220>
 <221> CDS
 <222> (1)...(408)

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 Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15

gtc cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
 Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

cct ggg gcc tca gtg cag gtt tcc tgt aag gca tct gga tac acc ttc 144
 Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

acc aac cat gtt att cac tgg ctg cga cag gcc cct gga caa ggg ctt 192
 Thr Asn His Val Ile His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat 240
 Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

gag aag ttc aag gac aga gtc acg atg acc tca gac acg tcc atc agc 288
 Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
 85 90 95

aca gcc tac atg gag ttg agc agt ctc aga tct gac gac acg gcc gtc 336
 Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
 100 105 110

tat tat tgt gct aga ggg ggt tac tat act tac gac gac tgg ggc caa 384
 Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

gca acc ctg gtc acc gtc tcc tca ggtgagtgga tccgcg 424
 Ala Thr Leu Val Thr Val Ser Ser
 130 135

<210> 31
 <211> 130
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
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 gacagccgc 130

<210> 32
 <211> 130
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 32
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 agggtggagg 130

<210> 33
 <211> 130
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 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
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<400> 33
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 gcaggagag 130

<210> 34
<211> 130
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 34
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gtgtgaaatc 130

<210> 35
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 35
cccaagcttc caccatgagg ctc 23

<210> 36
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 36
cgccggatcca ctcacgtttg atc 23

<210> 37
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<220>
<223> Description of Artificial Sequence: Synthetic
plasmid

<220>
<221> CDS
<222> (1)..(396)

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 1 5 10 15

 ggc tcc agt ggg gat gtt gtg atg act cag tct cca ctc tcc ctg ccc 96
 Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
 20 25 30

 gtc acc ctt gga cag ccg gcc tcc atc tcc tgc aga tca agt cag agc 144
 Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45

 ctt gtg cac agt aat gga aag acc tat tta cat tgg ttt cag cag agg 192
 Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Phe Gln Gln Arg
 50 55 60

 cca ggc caa tct cca agg cgc cta att tat aaa gtt tcc aac cga ttt 240
 Pro Gly Gln Ser Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Phe
 65 70 75 80

 tct ggt gtc cca gac aga ttc agc ggc agt ggg tca ggc act gat ttc 288
 Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 85 90 95

 aca ctg aaa atc agc agg gtg gag gct gag gat gtt gga gtt tat tac 336
 Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
 100 105 110

 tgc tct caa agt aca cat gtt ccg tac acg ttt ggc cag ggg acc aag 384
 Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
 115 120 125

 ctg gag atc aaa cgtgagtgga tccgcg 412
 Leu Glu Ile Lys
 130

<210> 38
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 <212> DNA
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 <220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

 <400> 38
 ccaggccaat ctccaaggct cctaatttat aaagttcc 39

<210> 39
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 <213> Artificial Sequence


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<210> 41
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<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 41
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<210> 42
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 42
ataaaactcca acatcctc                                18

<210> 43
<211> 412
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      plasmid

<220>
<221> CDS
<222> (1)..(396)

<400> 43
atg agg ctc cct gct cag ctc ctg ggg ctg cta atg ctc tgg gtc cca      48
Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
      1           5           10           15

ggc tcc agt ggg gat gtt gtg atg act cag tct cca ctc tcc ctg ccc      96
Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
      20          25          30

gtc acc ctt gga cag ccg gcc tcc atc tcc tgc aga tca agt cag agc      144
Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
      35          40          45

ctt gtg cac agt aat gga aag acc tat tta cat tgg ttt cag cag agg      192
Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Phe Gln Gln Arg
      50          55          60

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cca ggc caa tct cca agg cgc cta att tat aaa gtt tcc aac cga ttt	240
Pro Gly Gln Ser Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Phe	
65 70 75 80	
tct ggt gtc cca gac aga ttc agc ggc agt ggg tca ggc act gat ttc	288
Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Thr Asp Phe	
85 90 95	
aca ctg aaa atc agc agg gtg gag gct gag gat gtt gga gtt tat ttc	336
Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Phe	
100 105 110	
tgc tct caa agt aca cat gtt ccg tac acg ttt ggc cag ggg acc aag	384
Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys	
115 120 125	
ctg gag atc aaa cgtgagtgga tccgcg	412
Leu Glu Ile Lys	
130	

<210> 44	
<211> 39	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: Synthetic	
oligonucleotide	
<400> 44	
aagacctatt tacattggtt ccagcagagg ccaggccaa	39
<210> 45	
<211> 20	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: Synthetic	
oligonucleotide	
<400> 45	
ccaatgtaaa taggtcttcc	20
<210> 46	
<211> 412	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: Synthetic	
plasmid	

<220>

<221> CDS

<222> (1)...(396)

<400> 46

atg	agg	ctc	cct	gct	cag	ctc	ctg	ggg	ctg	cta	atg	ctc	tgg	gtc	cca	48
Met	Arg	Leu	Pro	Ala	Gln	Leu	Leu	Gly	Leu	Leu	Met	Leu	Trp	Val	Pro	
1		5							10				15			

ggc	tcc	agt	ggg	gat	gtt	gtg	atg	act	cag	tct	cca	ctc	tcc	ctg	ccc	96
Gly	Ser	Ser	Gly	Asp	Val	Val	Met	Thr	Gln	Ser	Pro	Leu	Ser	Leu	Pro	
20		25							30							

gtc	acc	ctt	gga	cag	ccg	gcc	tcc	atc	tcc	tgc	aga	tca	agt	cag	agc	144
Val	Thr	Leu	Gly	Gln	Pro	Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser	Gln	Ser	
35		40							45							

ctt	gtg	cac	agt	aat	gga	aag	acc	tat	tta	cat	tgg	tac	cag	cag	agg	192
Leu	Val	His	Ser	Asn	Gly	Lys	Thr	Tyr	Leu	His	Trp	Tyr	Gln	Gln	Arg	
50		55							60							

cca	ggc	caa	tct	cca	agg	cgc	cta	att	tat	aaa	gtt	tcc	aac	cga	ttt	240
Pro	Gly	Gln	Ser	Pro	Arg	Arg	Leu	Ile	Tyr	Lys	Val	Ser	Asn	Arg	Phe	
65		70							75						80	

tct	ggt	gtc	cca	gac	aga	ttc	agc	ggc	agt	ggg	tca	ggc	act	gat	ttc	288
Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	
85		90							95							

aca	ctg	aaa	atc	agc	agg	gtg	gag	gct	gag	gat	gtt	gga	gtt	tat	tac	336
Thr	Leu	Lys	Ile	Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly	Val	Tyr	Tyr	
100		105							110							

tgc	tct	caa	agt	aca	cat	gtt	ccg	tac	acg	ttt	ggc	cag	ggg	acc	aag	384
Cys	Ser	Gln	Ser	Thr	His	Val	Pro	Tyr	Thr	Phe	Gly	Gln	Gly	Thr	Lys	
115		120							125							

ctg	gag	atc	aaa	cgtgagtgga	tccgcg	412
Leu	Glu	Ile	Lys			
130						

<210> 47

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 47

cctatttaca ttgggttctg cagaggccag gccaatctc

39

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<210> 48
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 48
gaaaccaatg taaatagg 20

<210> 49
<211> 412
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      plasmid

<220>
<221> CDS
<222> (1)..(396)

<400> 49
atg agg ctc cct gct cag ctc ctg ggg ctg cta atg ctc tgg gtc cca 48
Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
 1           5           10           15

ggc tcc agt ggg gat gtt gtg atg act cag tct cca ctc tcc ctg ccc 96
Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
 20          25          30

gtc acc ctt gga cag ccg gcc tcc atc tcc tgc aga tca agt cag agc 144
Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35          40          45

ctt gtg cac agt aat gga aag acc tat tta cat tgg ttt ctg cag agg 192
Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Phe Leu Gln Arg
 50          55          60

cca ggc caa tct cca agg cgc cta att tat aaa gtt tcc aac cga ttt 240
Pro Gly Gln Ser Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Phe
 65          70          75          80

tct ggt gtc cca gac aga ttc agc ggc agt ggg tca ggc act gat ttc 288
Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Thr Asp Phe
 85          90          95

aca ctg aaa atc agc agg gtc gag gct gag gat gtt gga gtt tat tac 336
Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
 100         105         110

tgc tct caa agt aca cat gtt ccg tac acg ttt ggc cag ggg acc aag 384
Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
 115         120

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ctg gag atc aaa cgtgagtgga tccgcg 412
 Leu Glu Ile Lys
 130

<210> 50
 <211> 40
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 50 40
 cagaaggccag gccagtgctcc aagactcctg atctacaaaag

<210> 51
 <211> 40
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 51 40
 ggagactggc ctggcttctg cagataccaa tgtaaatagg

<210> 52
 <211> 412
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<220>
 <221> CDS
 <222> (1)..(396)

<400> 52 48
 atg agg ctc cct gct cag ctc ctg ggg ctg cta atg ctc tgg gtc cca
 Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
 1 5 10 15

ggc tcc agt ggg gat gtt gtg atg act cag tct cca ctc tcc ctg ccc 96
 Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
 20 25 30

gtc acc ctt gga cag ccg gcc tcc atc tcc tgc aga tca agt cag agc 144
 Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45

ctt gtg cac agt aat gga aag acc tat tta cat tgg tat ctg cag aag	192
Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Tyr Leu Gln Lys	
50 55 60	
cca ggc cag tct cca aga ctc ctg atc tac aaa gtt tcc aac cga ttt	240
Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe	
65 70 75 80	
tct ggt gtc cca gac aga ttc agc ggc agt ggg tca ggc act gat ttc	288
Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe	
85 90 95	
aca ctg aaa atc agc agg gtc gag gct gag gat gtt gga gtt tat tac	336
Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr	
100 105 110	
tgc tct caa agt aca cat gtt ccg tac acg ttt ggc cag ggg acc aag	384
Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys	
115 120 125	
ctg gag atc aaa cgtgagtgga tccgcg	412
Leu Glu Ile Lys	
130	

<210> 53
 <211> 54
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 53
 cagtctccac tctccctgcc cgtcacccct ggagagccgg cctccatctc ctgc 54

<210> 54
 <211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 54
 gggtgaggc tgatgatgtt ggaatttatt actgctctc 39

<210> 55
 <211> 48
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 55
 cagggagagt ggagactgag tcatacacaat atccccactg gagcctgg 48

<210> 56
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 56
 ccaacatcat cagcctccac cc 22

<210> 57
 <211> 412
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<220>
 <221> CDS
 <222> (1)...(396)

<400> 57
 atg agg ctc cct gct cag ctc ctg ggg ctg cta atg ctc tgg gtc cca 48
 Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
 1 5 10 15

ggc tcc agt ggg gat att gtg atg act cag tct cca ctc tcc ctg ccc 96
 Gly Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Leu Ser Leu Pro
 20 25 30

gtc acc cct gga gag ccg gcc tcc atc tcc tgc aga tca agt cag agc 144
 Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45

ctt gtg cac agt aat gga aag acc tat tta cat tgg tat ctg cag aag 192
 Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Tyr Leu Gln Lys
 50 55 60

cca ggc cag tct cca aga ctc ctg atc tac aaa gtt tcc aac cga ttt 240
 Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe
 65 70 75 80

tct ggt gtc cca gac aga ttc agc ggc agt ggg tca ggc act gat ttc 288
 Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 85 90 95

aca ctg aaa atc agc agg gtg gag gct gat gat gtt gga att tat tac 336
 Thr Leu Lys Ile Ser Arg Val Glu Ala Asp Asp Val Gly Ile Tyr Tyr
 100 105 110

tgc tct caa agt aca cat gtt ccg tac acg ttt ggc cag ggg acc aag 384
 Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
 115 120 125

ctg gag atc aaa cgtgagtgga tccgcg 412
 Leu Glu Ile Lys
 130

<210> 58
 <211> 38
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

 <400> 58
 cttcaccaa ccatgttatg cactggctgc gacaggcc 38

<210> 59
 <211> 38
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

 <400> 59
 ataatgagaa gttcaagggc agagtcacga tgacctca 38

<210> 60
 <211> 38
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

 <400> 60
 tgctagaggg ggttactatt cttacgacga ctggggcc 38

<210> 61
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 61
 ataacatgg tggtaagg 20

<210> 62
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 62
 ccttgaacctt ctcattatac 20

<210> 63
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 63
 atagtaaccc cctctagca 19

<210> 64
 <211> 424
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<220>
 <221> CDS
 <222> (1)..(408)

<400> 64
 atg gaa tgg agc tgg ata ttt ctc ttc ctc ctg tca gga act gca ggt 48
 Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15

gtc cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
 Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

cct	ggg	gcc	tca	gtg	cag	gtt	tcc	tgt	aag	gca	tct	gga	tac	acc	ttc	144
Pro	Gly	Ala	Ser	Val	Gln	Val	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Thr	Phe	
35							40						45			
acc	aac	cat	gtt	atg	cac	tgg	ctg	cga	cag	gcc	cct	gga	caa	ggg	ctt	192
Thr	Asn	His	Val	Met	His	Trp	Leu	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	
50							55						60			
gag	tgg	atg	gga	tat	att	tat	cct	tac	aat	gat	ggt	act	aag	tat	aat	240
Glu	Trp	Met	Gly	Tyr	Ile	Tyr	Pro	Tyr	Asn	Asp	Gly	Thr	Lys	Tyr	Asn	
65							70						75			80
gag	aag	ttc	aag	ggc	aga	gtc	acg	atg	acc	tca	gac	acg	tcc	atc	agc	288
Glu	Lys	Phe	Lys	Gly	Arg	Val	Thr	Met	Thr	Ser	Asp	Thr	Ser	Ile	Ser	
							85						90			95
aca	gcc	tac	atg	gag	ttg	agc	agt	ctc	aga	tct	gac	gac	acg	gcc	gtc	336
Thr	Ala	Tyr	Met	Glu	Leu	Ser	Ser	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	
							100						105			110
tat	tat	tgt	gct	aga	ggg	ggt	tac	tat	tct	tac	gac	gac	tgg	ggc	caa	384
Tyr	Tyr	Cys	Ala	Arg	Gly	Gly	Tyr	Tyr	Ser	Tyr	Asp	Asp	Trp	Gly	Gln	
							115						120			125
gca	acc	ctg	gtc	acc	gtc	tcc	tca	ggtgagtgg	ttcccg							424
Ala	Thr	Leu	Val	Thr	Val	Ser	Ser									
							130						135			

<210> 65

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 65

acagtaaggg aaacacctat ttacagtgg atctgcaga

39

<210> 66

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 66

ataggtgttt cccttactgt gcagaaggct ctgacttga

39

<210> 67
 <211> 412
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<220>
 <221> CDS
 <222> (1) .. (396)

<400> 67

atg	agg	ctc	cct	gct	cag	ctc	ctg	ggg	ctg	cta	atg	ctc	tgg	gtc	cca	48
Met	Arg	Leu	Pro	Ala	Gln	Leu	Leu	Gly	Leu	Leu	Met	Leu	Trp	Val	Pro	
1		5				10					15					

ggc	tcc	agt	ggg	gat	att	gtg	atg	act	cag	tct	cca	ctc	tcc	ctg	ccc	96
Gly	Ser	Ser	Gly	Asp	Ile	Val	Met	Thr	Gln	Ser	Pro	Leu	Ser	Leu	Pro	
20		25				25					30					

gtc	acc	cct	gga	gag	ccg	gcc	tcc	atc	tcc	tgc	aga	tca	agt	cag	agc	144
Val	Thr	Pro	Gly	Glu	Pro	Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser	Gln	Ser	
35		40				35				45						

ctt	ctg	cac	agt	aag	gga	aac	acc	tat	tta	cag	tgg	tat	ctg	cag	aag	192
Leu	Leu	His	Ser	Lys	Gly	Asn	Thr	Tyr	Leu	Gln	Trp	Tyr	Leu	Gln	Lys	
50		55			55				60							

cca	ggc	cag	tct	cca	aga	ctc	ctg	atc	tac	aaa	gtt	tcc	aac	cga	ttt	240
Pro	Gly	Gln	Ser	Pro	Arg	Leu	Leu	Ile	Tyr	Lys	Val	Ser	Asn	Arg	Phe	
65		70			70				75			80				

tct	ggt	gtc	cca	gac	aga	ttc	agc	ggc	agt	ggg	tca	ggc	act	gat	ttc	288
Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	
85		90			85			90		95						

aca	ctg	aaa	atc	agc	agg	gtg	gag	gct	gat	gat	gtt	gga	att	tat	tac	336
Thr	Leu	Lys	Ile	Ser	Arg	Val	Glu	Ala	Asp	Asp	Val	Gly	Ile	Tyr	Tyr	
100		100			105			105		110						

tgc	tct	caa	agt	aca	cat	gtt	ccg	tac	acg	ttt	ggc	cag	ggg	acc	aag	384
Cys	Ser	Gln	Ser	Thr	His	Val	Pro	Tyr	Thr	Phe	Gly	Gln	Gly	Thr	Lys	
115		115			120			120		125						

ctg	gag	atc	aaa	cgt	gag	tgg	aa	tcc	cg	ttt	ggc	cag	ggg	acc	aag	412
Leu	Glu	Ile	Lys													
130																

<210> 68
 <211> 25
 <212> DNA
 <213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 68
      aggtgtcgac tcccgaggc agctg                                25

<210> 69
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 69
      ccaccactcg agactgtgac cagggttgct tggcc                                35

<210> 70
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 70
      cagtctcgag tggggcgga ggttccgata ttgtgatgac tcag                                44

<210> 71
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 71
      aaaaggaaaa gcggccgctc attatttgat ctccagcttg gtcccc                                46

<210> 72
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

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<220>
<221> CDS
<222> (1)...(15)

<400> 72
gg t ggc gga ggt tcc 15
Gly Gly Gly Gly Ser
1 5

<210> 73
<211> 768
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
plasmid

<220>
<221> CDS
<222> (1)...(759)

<400> 73
atg gga tgg agc tgt atc atc ctc ttc ttg gta gca aca gct aca ggt 48
Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
1 5 10 15

gtc gac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
Val Asp Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
20 25 30

cct ggg gcc tca gtg cag gtt tcc tgt aag gca tct gga tac acc ttc 144
Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
35 40 45

acc aac cat gtt att cac tgg ctg cga cag gcc cct gga caa ggg ctt 192
Thr Asn His Val Ile His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
50 55 60

gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat 240
Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
65 70 75 80

gag aag ttc aag gac aga gtc acg atg acc tca gac acg tcc atc agc 288
Glu Lys Phe Lys Asp Arg Val Thr Met Ser Asp Thr Ser Ile Ser
85 90 95

aca gcc tac atg gag ttg agc agt ctc aga tct gac gac acg gcc gtc 336
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
100 105 110

tat tat tgt gct aga ggg ggt tac tat act tac gac gac tgg ggc caa 384
Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
115 120 125

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gca acc ctg gtc aca gtc tcg agt ggt ggc gga ggt tcc gat att gtg	432
Ala Thr Leu Val Thr Val Ser Ser Gly Gly Gly Ser Asp Ile Val	
130 135 140	
atg act cag tct cca ctc tcc ctg ccc gtc acc cct gga gag ccg gcc	480
Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala	
145 150 155 160	
tcc atc tcc tgc aga tca agt cag agc ctt gtg cac agt aat gga aag	528
Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser Asn Gly Lys	
165 170 175	
acc tat tta cat tgg tat ctg cag aag cca ggc cag tct cca aga ctc	576
Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Leu	
180 185 190	
ctg atc tac aaa gtt tcc aac cga ttt tct ggt gtc cca gac aga ttc	624
Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe	
195 200 205	
agc ggc agt ggg tca ggc act gat ttc aca ctg aaa atc agc agg gtg	672
Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val	
210 215 220	
gag gct gat gat gtt gga att tat tac tgc tctcaa agt aca cat gtt	720
Glu Ala Asp Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val	
225 230 235 240	
ccg tac acg ttt ggc cag ggg acc aag ctg gag atc aaa taatgagcg	768
Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys	
245 250	

<210> 74
 <211> 768
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<220>
 <221> CDS
 <222> (1)..(759)

<400> 74

atg gga tgg agc tgt atc atc ctc ttc ttg gta gca aca gct aca ggt	48
Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly	
1 5 10 15	
gtc gac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag	96
Val Asp Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys	
20 25 30	

<210> 75
 <211> 44
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 75
 cgccggatccg gtgggtggcgg atcgcagggtg cagctggtgc agtc

44

<210> 76
 <211> 54
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 76
 cgccggatcca ccaccacccg aaccaccacc acctttgatc tccagcttgg tccc

54

<210> 77
 <211> 45
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<220>
 <221> CDS
 <222> (1)..(45)

<400> 77
 ggt ggt ggt tcg ggt ggt gga tcc ggt ggt ggc gga tcg
 Gly Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser
 1 5 10 15

45

<210> 78
 <211> 1515
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<220>
 <221> CDS
 <222> (1)..(1506)

<400> 78
 atg gga tgg agc tgt atc atc ctc ttc ttg gta gca aca gct aca ggt 48
 Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
 1 5 10 15

 gtc gac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
 Val Asp Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

 cct ggg gcc tca gtg cag gtt tcc tgt aag gca tct gga tac acc ttc 144
 Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

 acc aac cat gtt att cac tgg ctg cga cag gcc cct gga caa ggg ctt 192
 Thr Asn His Val Ile His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

 gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat 240
 Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

 gag aag ttc aag gac aga gtc acg atg acc tca gac acg tcc atc agc 288
 Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
 85 90 95

 aca gcc tac atg gag ttg agc agt ctc aga tct gac gac acg gcc gtc 336
 Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
 100 105 110

 tat tat tgt gct aga ggg ggt tac tat act tac gac gac tgg ggc caa 384
 Tyr Tyr Cys Ala Arg Gly Gly Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

 gca acc ctg gtc aca gtc tcg agt ggt ggc gga ggt tcc gat att gtg 432
 Ala Thr Leu Val Thr Val Ser Ser Gly Gly Gly Ser Asp Ile Val
 130 135 140

 atg act cag tct cca ctc tcc ctg ccc gtc acc cct gga gag ccg gcc 480
 Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala
 145 150 160

 tcc atc tcc tgc aga tca agt cag agc ctt gtg cac agt aat gga aag 528
 Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser Asn Gly Lys
 165 170 175

 acc tat tta cat tgg tat ctg cag aag cca ggc cag tct cca aga ctc 576
 Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Leu
 180 185 190

 ctg atc tac aaa gtt tcc aac cga ttt tct ggt gtc cca gac aga ttc 624
 Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe
 195 200 205

 agc ggc agt ggg tca ggc act gat ttc aca ctg aaa atc agc agg gtg 672
 Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val
 210 215 220

gag gct gat gat gtt gga att tat tac tgc tct caa agt aca cat gtt	720
Glu Ala Asp Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val	
225 230 235 240	
ccg tac acg ttt ggc cag ggg acc aag ctg gag atc aaa ggt ggt ggt	768
Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Gly Gly Gly	
245 250 255	
ggt tcg ggt ggt gga tcc ggt ggc gga tcg cag gtg cag ctg	816
Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gln Val Gln Leu	
260 265 270	
gtg cag tct ggg gct gag gtg aag aag cct ggg gcc tca gtg cag gtt	864
Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala Ser Val Gln Val	
275 280 285	
tcc tgt aag gca tct gga tac acc ttc acc aac cat gtt att cac tgg	912
Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn His Val Ile His Trp	
290 295 300	
ctg cga cag gcc cct gga caa ggg ctt gag tgg atg gga tat att tat	960
Leu Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Tyr Ile Tyr	
305 310 315 320	
cct tac aat gat ggt act aag tat aat gag aag ttc aag gac aga gtc	1008
Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe Lys Asp Arg Val	
325 330 335	
acg atg acc tca gac acg tcc atc agc aca gcc tac atg gag ttg agc	1056
Thr Met Thr Ser Asp Thr Ser Ile Ser Thr Ala Tyr Met Glu Leu Ser	
340 345 350	
agt ctc aga tct gac gac acg gcc gtc tat tat tgt gct aga ggg ggt	1104
Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Gly	
355 360 365	
tac tat act tac gac gac tgg ggc caa gca acc ctg gtc aca gtc tcc	1152
Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln Ala Thr Leu Val Thr Val Ser	
370 375 380	
agt ggt ggc gga ggt tcc gat att gtg atg act cag tct cca ctc tcc	1200
Ser Gly Gly Ser Asp Ile Val Met Thr Gln Ser Pro Leu Ser	
385 390 395 400	
ctg ccc gtc acc cct gga gag ccg gcc tcc atc tcc tgc aga tca agt	1248
Leu Pro Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser	
405 410 415	
cag agc ctt gtg cac agt aat gga aag acc tat tta cat tgg tat ctg	1296
Gln Ser Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Tyr Leu	
420 425 430	
cag aag cca ggc cag tct cca aga ctc ctg atc tac aaa gtt tcc aac	1344
Gln Lys Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn	
435 440 445	

cga ttt tct ggt gtc cca gac aga ttc acg ggc agt ggg tca ggc act	1392
Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr	
450	455
460	
gat ttc aca ctg aaa atc acg agg gtg gag gct gat gat gtt gga att	1440
Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Asp Asp Val Gly Ile	
465	470
475	480
tat tac tgc tct caa agt aca cat gtt ccg tac acg ttt ggc cag ggg	1488
Tyr Tyr Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly	
485	490
495	
acc aag ctg gag atc aaa taatgagcg	1515
Thr Lys Leu Glu Ile Lys	
500	

<210> 79	
<211> 1515	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: Synthetic	
plasmid	
<220>	
<221> CDS	
<222> (1)..(1506)	
<400> 79	
atg gga tgg agc tgt atc atc ctc ttc ttg gta gca aca gct aca ggt	48
Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly	
1	5
10	
15	
gtc gac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag	96
Val Asp Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys	
20	25
30	
cct ggg gcc tca gtg cag gtt tcc tgt aag gca tct gga tac acc ttc	144
Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe	
35	40
45	
acc aac cat gtt atg cac tgg ctg cga cag gcc cct gga caa ggg ctt	192
Thr Asn His Val Met His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu	
50	55
60	
gag tgg atg gga tat att tat cct tac aat gat ggt act aag tat aat	240
Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn	
65	70
75	
80	
gag aag ttc aag ggc aga gtc acg atg acc tca gac acg tcc atc agc	288
Glu Lys Phe Lys Gly Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser	
85	90
95	

aca gcc tac atg gag ttg agc agt ctc aga tct gac gac acg gcc gtc	336
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val	
100 105 110	
tat tat tgt gct aga ggg ggt tac tat tct tac gac gac tgg ggc caa	384
Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Ser Tyr Asp Asp Trp Gly Gln	
115 120 125	
gca acc ctg gtc aca gtc tcg agt ggt ggc gga ggt tcc gat att gtg	432
Ala Thr Leu Val Thr Val Ser Ser Gly Gly Ser Asp Ile Val	
130 135 140	
atg act cag tct cca ctc tcc ctg ccc gtc acc cct gga gag ccg gcc	480
Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala	
145 150 155 160	
tcc atc tcc tgc aga tca agt cag agc ctt ctg cac agt aag gga aac	528
Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu His Ser Lys Gly Asn	
165 170 175	
acc tat tta cag tgg tat ctg cag aag cca ggc cag tct cca aga ctc	576
Thr Tyr Leu Gln Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Leu	
180 185 190	
ctg atc tac aaa gtt tcc aac cga ttt tct ggt gtc cca gac aga ttc	624
Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe	
195 200 205	
agc ggc agt ggg tca ggc act gat ttc aca ctg aaa atc agc agg gtg	672
Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val	
210 215 220	
gag gct gat gat gtt gga att tat tac tgc tct caa agt aca cat gtt	720
Glu Ala Asp Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val	
225 230 235 240	
ccg tac acg ttt ggc cag ggg acc aag ctg gag atc aaa ggt ggt ggt	768
Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Gly Gly	
245 250 255	
ggt tcg ggt ggt gga tcc ggt ggt ggc gga tcg cag gtg cag ctg	816
Gly Ser Gly Gly Ser Gly Gly Ser Gly Ser Gln Val Gln Leu	
260 265 270	
gtg cag tct ggg gct gag gtg aag aag cct ggg gcc tca gtg cag gtt	864
Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala Ser Val Gln Val	
275 280 285	
tcc tgt aag gca tct gga tac acc ttc acc aac cat gtt atg cac tgg	912
Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn His Val Met His Trp	
290 295 300	
ctg cga cag gcc cct gga caa ggg ctt gag tgg atg gga tat att tat	960
Leu Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Tyr Ile Tyr	
305 310 315 320	

cct tac aat gat ggt act aag tat aat gag aag ttc aag ggc aga gtc	1008		
Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe Lys Gly Arg Val			
325	330	335	
acg atg acc tca gac acg tcc atc agc aca gcc tac atg gag ttg agc	1056		
Thr Met Thr Ser Asp Thr Ser Ile Ser Thr Ala Tyr Met Glu Leu Ser			
340	345	350	
agt ctc aga tct gac gac acg gcc gtc tat tat tgt gct aga ggg ggt	1104		
Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Gly			
355	360	365	
tac tat tct tac gac gac tgg ggc caa gca acc ctg gtc aca gtc tcg	1152		
Tyr Tyr Ser Tyr Asp Asp Trp Gly Gln Ala Thr Leu Val Thr Val Ser			
370	375	380	
agt ggt ggc gga ggt tcc gat att gtg atg act cag tct cca ctc tcc	1200		
Ser Gly Gly Gly Ser Asp Ile Val Met Thr Gln Ser Pro Leu Ser			
385	390	395	400
ctg ccc gtc acc cct gga gag ccg gcc tcc atc tcc tgc aga tca agt	1248		
Leu Pro Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser			
405	410	415	
cag agc ctt ctg cac agt aag gga aac acc tat tta cag tgg tat ctg	1296		
Gln Ser Leu Leu His Ser Lys Gly Asn Thr Tyr Leu Gln Trp Tyr Leu			
420	425	430	
cag aag cca ggc cag tct cca aga ctc ctg atc tac aaa gtt tcc aac	1344		
Gln Lys Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn			
435	440	445	
cga ttt tct ggt gtc cca gac aga ttc agc ggc agt ggg tca ggc act	1392		
Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr			
450	455	460	
gat ttc aca ctg aaa atc agc agg gtg gag gct gat gat gtt gga att	1440		
Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Asp Asp Val Gly Ile			
465	470	475	480
tat tac tgc tct caa agt aca cat gtt ccg tac acg ttt ggc cag ggg	1488		
Tyr Tyr Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly			
485	490	495	
acc aag ctg gag atc aaa taatgagcg	1515		
Thr Lys Leu Glu Ile Lys			
500			

<210> 80

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 80		
ctcgaggaat tcccaccatg ggatggagct gtatcatcc		39
<210> 81		
<211> 27		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Description of Artificial Sequence: Synthetic		
oligonucleotide		
<400> 81		
gggggcctgt cgcagccagt gaataac		27
<210> 82		
<211> 45		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Description of Artificial Sequence: Synthetic		
oligonucleotide		
<400> 82		
ggcagtcag tgtatacggc cgtgtcgta gatctgagac tgctc		45
<210> 83		
<211> 35		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Description of Artificial Sequence: Synthetic		
oligonucleotide		
<400> 83		
ggcaatgcc ttgagtgat gggatataatt tatcc		35
<210> 84		
<211> 54		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Description of Artificial Sequence: Synthetic		
oligonucleotide		
<400> 84		
tcattatgg atctcaagct tggtcccgca gccaaacgtg tacggaacat gtgt		54

<210> 85
<211> 68
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 85
tactattgtg ctagaggggg ttactatact tacgacgact ggggctgcgc aaccctggtc 60
acagtctc 68

<210> 86
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 86
gggcttctgc agataccaaat gtaaaataggt ctttc 35

<210> 87
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 87
gggcagtgcc caagactcct gatctacaaa gtttcc 36

<210> 88
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 88
tcattatttg atctcaagct tggtccctg gccaaac 37

<210> 89
<211> 708
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide sequence

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<400> 89
cagggtgcagc tgggtgcagtc tggggctgag gtgaagaagc ctggggcctc agtgcagggt 60
tcctgttaagg catctggata caccttcacc aaccatgtta ttcaactggct gcgacaggcc 120
cccgggcaat gccttgagtg gatggatat atttatcctt acaatgatgg tactaagtgat 180
aatgagaagt tcaaggacag agtcacagatg acctcagaca cgtccatcag cacagccctac 240
atggaggtga gcaagtctcag atctgacgcg acggccgtctt attattgtgc tagaggggggt 300
tactatactt acgacgactg gggccaaagca accttggtca cagtctcgag tgggtggcgga 360
ggttccgata ttgtgtatgc tcagtctcca ctctccctgc ccgtccacccc tgagagccgg 420
gcctccatctt cctgcagatc aagtcaagacg ctgtgcaca gtaatgaaa gacctatatta 480
cattggatc tgcagaagcc aggccagtct ccaagactcc tgatctacaa agtttccaaac 540
cgatttctg gtgtcccaga cagattcagc ggcagtgggt caggcaactga tttcacactg 600
aaaatcagca ggggtggaggc tgatgtatgtt ggaattttt actgctctca aagtacacat 660
gttccgtaca cgtttggctg cgggaccaag ctgtgagatca aataatga 708
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<210> 90
<211> 234
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic protein

<400> 90
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn His
20 25 30

Val Ile His Trp Leu Arg Gln Ala Pro Gly Gln Cys Leu Glu Trp Met
35 40 45

Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe
50 55 60

Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Gly Gly Tyr Tyr Thr Asp Asp Trp Gly Gln Ala Thr Leu
100 105 110

Val Thr Val Ser Ser Gly Gly Ser Asp Ile Val Met Thr Gln
115 120 125

Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala Ser Ile Ser
130 135 140

Cys Arg Ser Ser Gln Ser Leu Val His Ser Asn Gly Lys Thr Tyr Leu
145 150 155 160

His Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr
 165 170 175

Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser
 180 185 190

Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Asp
 195 200 205

Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val Pro Tyr Thr
 210 215 220

Phe Gly Cys Gly Thr Lys Leu Glu Ile Lys
 225 230

<210> 91

<211> 708

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 polynucleotide sequence

<400> 91

caggtgcagtc tgggtgcgtgc tggtgcgtgc gtgtgcgtgc ctggggcctc agtgcaggtt 60
 tcctgttaagg catctggata caccttcacc aaccatgtta ttcaactggct ggcacaggcc 120
 cctggggcaag ggcttgatgt gatggatatttattccat acaatgtatgg tactaagtat 180
 aatgagaagt tcaaggagacag agtcacgtat acctcagaca cgtccatcag cacagcctac 240
 atggagttga gcagtcgtatc atctgacgtatc acggccgtat actattgtgc tagaggggtt 300
 tactatactt acgacgactt gggctgcgtca accctggatca cagtcgtatc tggtggcgaa 360
 gggtccgata ttgtgtatgc tcagtcgtca ctctccctgc ccgtcaccatcc tggagagccg 420
 gcctccatct cctgcagatc aagtccatgc cttgtgcata gtaatggaaa gacctattta 480
 cattggatcc tgcagaagacc cgggcgtatc ccaagactcc tgatctacaa agtttccaa 540
 cgattttcttgc gtgtcccaga cagattcgtatc ggcgtatgggtt caggactgtatc tttcacactg 600
 aaaatcgtatc ggggtggggc tgatgtatgtt ggaatttttactgtctca aagtacacat 660
 gttccgtatc cgtttggccca ggggaccaag cttgtatc aataatgtatc 708

<210> 92

<211> 234

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 protein

<400> 92

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15

Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn His
 20 25 30

Val Ile His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe
 50 55 60

Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser Thr Ala Tyr
 65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Gly Gly Tyr Tyr Thr Asp Asp Trp Gly Cys Ala Thr Leu
 100 105 110

Val Thr Val Ser Ser Gly Gly Ser Asp Ile Val Met Thr Gln
 115 120 125

Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala Ser Ile Ser
 130 135 140

Cys Arg Ser Ser Gln Ser Leu Val His Ser Asn Gly Lys Thr Tyr Leu
 145 150 155 160

His Trp Tyr Leu Gln Lys Pro Gly Gln Cys Pro Arg Leu Leu Ile Tyr
 165 170 175

Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser
 180 185 190

Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Asp
 195 200 205

Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val Pro Tyr Thr
 210 215 220

Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 225 230

<210> 93

<211> 136

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
plasmid

<400> 93

Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
1 5 10 15Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
20 25 30

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

Ala Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

Glu Lys Phe Lys Asp Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser
 85 90 95

Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
 100 105 110

Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

Gly Thr Leu Val Thr Val Ser Ser
 130 135

<210> 94

<211> 136

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
plasmid

<400> 94

Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Ser Gly Thr Ala Gly
 1 5 10 15

Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

Ala Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Thr Ser
 85 90 95

Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
 100 105 110

Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

Gly Thr Leu Val Thr Val Ser Ser
 130 135

<210> 95
 <211> 136
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 95
 Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15

Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

Thr Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Thr Ser
 85 90 95

Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
 100 105 110

Tyr Tyr Cys Ala Arg Gly Gly Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

Gly Thr Leu Val Thr Val Ser Ser
 130 135

<210> 96
 <211> 136
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 96
 Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15

Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

Ala Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

Glu Lys Phe Lys Asp Lys Val Thr Met Thr Ser Asp Thr Ser Thr Ser
 85 90 95

Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
 100 105 110

Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

Gly Thr Leu Val Thr Val Ser Ser
 130 135

<210> 97

<211> 136

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
plasmid

<400> 97

Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15

Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

Ala Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

Glu Lys Phe Lys Asp Arg Val Thr Leu Thr Ser Asp Thr Ser Thr Ser
 85 90 95

Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
 100 105 110

Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

Gly Thr Leu Val Thr Val Ser Ser
 130 135

<210> 98
 <211> 136
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 98
 Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15
 Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30
 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 Thr Asn His Val Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60
 Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80
 Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Thr Ser
 85 90 95
 Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Gly Gly Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125
 Gly Thr Leu Val Thr Val Ser Ser
 130 135

<210> 99
 <211> 136
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 99
 Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15
 Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

Thr Asn His Val Ile His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
 85 90 95

Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
 100 105 110

Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

Ala Thr Leu Val Thr Val Ser Ser
 130 135

<210> 100

<211> 132

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
plasmid

<400> 100

Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
1 5 10 15Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
20 25 30Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
35 40 45Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Phe Gln Gln Arg
50 55 60Pro Gly Gln Ser Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Phe
65 70 75 80Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Thr Asp Phe
85 90 95Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
100 105 110Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
115 120 125

Leu Glu Ile Lys
130

<210> 101
<211> 132
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
plasmid

<400> 101
Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
1 5 10 15

Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
20 25 30

Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
35 40 45

Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Phe Gln Gln Arg
50 55 60

Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe
65 70 75 80

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Thr Asp Phe
85 90 95

Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
100 105 110

Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
115 120 125

Leu Glu Ile Lys
130

<210> 102
<211> 132
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
plasmid

<400> 102
Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
1 5 10 15

Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
20 25 30

Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45

Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Phe Gln Gln Arg
 50 55 60

Pro Gly Gln Ser Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Phe
 65 70 75 80

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 85 90 95

Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Phe
 100 105 110

Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
 115 120 125

Leu Glu Ile Lys
 130

<210> 103

<211> 132

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 103

Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
 1 5 10 15

Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
 20 25 30

Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45

Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Tyr Gln Gln Arg
 50 55 60

Pro Gly Gln Ser Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Phe
 65 70 75 80

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 85 90 95

Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
 100 105 110

Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
 115 120 125

Leu Glu Ile Lys
130

<210> 104
<211> 132
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
plasmid

<400> 104
Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
1 5 10 15

Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
20 25 30

Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
35 40 45

Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Phe Leu Gln Arg
50 55 60

Pro Gly Gln Ser Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Phe
65 70 75 80

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Thr Asp Phe
85 90 95

Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
100 105 110

Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
115 120 125

Leu Glu Ile Lys
130

<210> 105
<211> 132
<212> PRT
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
plasmid

<400> 105
Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
1 5 10 15

Gly Ser Ser Gly Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro
20 25 30

Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45

 Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Tyr Leu Gln Lys
 50 55 60

 Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe
 65 70 75 80

 Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 85 90 95

 Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
 100 105 110

 Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
 115 120 125

 Leu Glu Ile Lys
 130

<210> 106
 <211> 132
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 106
 Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
 1 5 10 15

 Gly Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Leu Ser Leu Pro
 20 25 30

 Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45

 Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Tyr Leu Gln Lys
 50 55 60

 Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe
 65 70 75 80

 Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 85 90 95

 Thr Leu Lys Ile Ser Arg Val Glu Ala Asp Asp Val Gly Ile Tyr Tyr
 100 105 110

 Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
 115 120 125

Leu Glu Ile Lys
130

<210> 107

<211> 136

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
plasmid

<400> 107

Met Glu Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
1 5 10 15Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
20 25 30Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
35 40 45Thr Asn His Val Met His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
50 55 60Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
65 70 75 80Glu Lys Phe Lys Gly Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
85 90 95Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
100 105 110Tyr Tyr Cys Ala Arg Gly Gly Tyr Ser Tyr Asp Asp Trp Gly Gln
115 120 125Ala Thr Leu Val Thr Val Ser Ser
130 135

<210> 108

<211> 132

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
plasmid

<400> 108

Met Arg Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
1 5 10 15Gly Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Leu Ser Leu Pro
20 25 30

Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45

Leu Leu His Ser Lys Gly Asn Thr Tyr Leu Gln Trp Tyr Leu Gln Lys
 50 55 60

Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe
 65 70 75 80

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Thr Asp Phe
 85 90 95

Thr Leu Lys Ile Ser Arg Val Glu Ala Asp Asp Val Gly Ile Tyr Tyr
 100 105 110

Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys
 115 120 125

Leu Glu Ile Lys
 130

<210> 109

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 109

Gly Gly Gly Gly Ser
 1 5

<210> 110

<211> 253

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 110

Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
 1 5 10 15

Val Asp Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

Thr Asn His Val Ile His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
 85 90 95

Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
 100 105 110

Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

Ala Thr Leu Val Thr Val Ser Ser Gly Gly Gly Ser Asp Ile Val
 130 135 140

Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala
 145 150 155 160

Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser Asn Gly Lys
 165 170 175

Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Leu
 180 185 190

Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe
 195 200 205

Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val
 210 215 220

Glu Ala Asp Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val
 225 230 235 240

Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 245 250

<210> 111
 <211> 253
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 111
 Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
 1 5 10 15

Val Asp Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

Thr Asn His Val Met His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

Glu Lys Phe Lys Gly Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
 85 90 95

Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
 100 105 110

Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Ser Tyr Asp Asp Trp Gly Gln
 115 120 125

Ala Thr Leu Val Thr Val Ser Ser Gly Gly Gly Ser Asp Ile Val
 130 135 140

Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala
 145 150 155 160

Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu His Ser Lys Gly Asn
 165 170 175

Thr Tyr Leu Gln Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Leu
 180 185 190

Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe
 195 200 205

Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val
 210 215 220

Glu Ala Asp Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val
 225 230 235 240

Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 245 250

<210> 112

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 112

Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser
1 5 10 15

<210> 113
 <211> 502
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 113
 Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
 1 5 10 15

Val Asp Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30

Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

Thr Asn His Val Ile His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60

Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80

Glu Lys Phe Lys Asp Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
 85 90 95

Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
 100 105 110

Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln
 115 120 125

Ala Thr Leu Val Thr Val Ser Ser Gly Gly Gly Ser Asp Ile Val
 130 135 140

Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala
 145 150 155 160

Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser Asn Gly Lys
 165 170 175

Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Leu
 180 185 190

Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe
 195 200 205

Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val
 210 215 220

Glu Ala Asp Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val
 225 230 235 240

Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Gly Gly
 245 250 255

Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser Gln Val Gln Leu
 260 265 270
 Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala Ser Val Gln Val
 275 280 285
 Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn His Val Ile His Trp
 290 295 300
 Leu Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Tyr Ile Tyr
 305 310 315 320
 Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe Lys Asp Arg Val
 325 330 335
 Thr Met Thr Ser Asp Thr Ser Ile Ser Thr Ala Tyr Met Glu Leu Ser
 340 345 350
 Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Gly
 355 360 365
 Tyr Tyr Thr Tyr Asp Asp Trp Gly Gln Ala Thr Leu Val Thr Val Ser
 370 375 380
 Ser Gly Gly Gly Ser Asp Ile Val Met Thr Gln Ser Pro Leu Ser
 385 390 395 400
 Leu Pro Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser
 405 410 415
 Gln Ser Leu Val His Ser Asn Gly Lys Thr Tyr Leu His Trp Tyr Leu
 420 425 430
 Gln Lys Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn
 435 440 445
 Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Thr
 450 455 460
 Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Asp Asp Val Gly Ile
 465 470 475 480
 Tyr Tyr Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly
 485 490 495
 Thr Lys Leu Glu Ile Lys
 500

<210> 114
 <211> 502
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 plasmid

<400> 114
 Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
 1 5 10 15
 Val Asp Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30
 Pro Gly Ala Ser Val Gln Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 Thr Asn His Val Met His Trp Leu Arg Gln Ala Pro Gly Gln Gly Leu
 50 55 60
 Glu Trp Met Gly Tyr Ile Tyr Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
 65 70 75 80
 Glu Lys Phe Lys Gly Arg Val Thr Met Thr Ser Asp Thr Ser Ile Ser
 85 90 95
 Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Asp Asp Thr Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Gly Gly Tyr Tyr Ser Tyr Asp Asp Trp Gly Gln
 115 120 125
 Ala Thr Leu Val Thr Val Ser Ser Gly Gly Gly Ser Asp Ile Val
 130 135 140
 Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly Glu Pro Ala
 145 150 155 160
 Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu His Ser Lys Gly Asn
 165 170 175
 Thr Tyr Leu Gln Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Leu
 180 185 190
 Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe
 195 200 205
 Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val
 210 215 220
 Glu Ala Asp Asp Val Gly Ile Tyr Tyr Cys Ser Gln Ser Thr His Val
 225 230 235 240
 Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Gly Gly
 245 250 255
 Gly Ser Gly Gly Ser Gly Gly Ser Gln Val Gln Leu
 260 265 270
 Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala Ser Val Gln Val
 275 280 285
 Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn His Val Met His Trp
 290 295 300

Leu Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Tyr Ile Tyr
 305 310 315 320

Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe Lys Gly Arg Val
 325 330 335

Thr Met Thr Ser Asp Thr Ser Ile Ser Thr Ala Tyr Met Glu Leu Ser
 340 345 350

Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Gly
 355 360 365

Tyr Tyr Ser Tyr Asp Asp Trp Gly Gln Ala Thr Leu Val Thr Val Ser
 370 375 380

Ser Gly Gly Gly Ser Asp Ile Val Met Thr Gln Ser Pro Leu Ser
 385 390 395 400

Leu Pro Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser
 405 410 415

Gln Ser Leu Leu His Ser Lys Gly Asn Thr Tyr Leu Gln Trp Tyr Leu
 420 425 430

Gln Lys Pro Gly Gln Ser Pro Arg Leu Leu Ile Tyr Lys Val Ser Asn
 435 440 445

Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr
 450 455 460

Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Asp Asp Val Gly Ile
 465 470 475 480

Tyr Tyr Cys Ser Gln Ser Thr His Val Pro Tyr Thr Phe Gly Gln Gly
 485 490 495

Thr Lys Leu Glu Ile Lys
 500

<210> 115

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide linker

<400> 115

Gly Gly Gly Ser

1

<210> 116

<211> 4

<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide linker

<400> 116
Ser Gly Gly Gly
1

<210> 117
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide linker

<400> 117
Ser Gly Gly Gly Gly
1 5

<210> 118
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide linker

<400> 118
Gly Gly Gly Gly Ser
1 5

<210> 119
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide linker

<400> 119
Ser Gly Gly Gly Gly Gly
1 5

<210> 120
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide linker

<400> 120
Gly Gly Gly Gly Gly Ser
1 5

<210> 121
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide linker

<400> 121
Ser Gly Gly Gly Gly Gly
1 5

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